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Spinal Manipulation for Low-Back Pain

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Low-back pain (often referred to as "lower back pain") is a common condition that usually improves with self-care (practices that people can do by themselves, such as remaining active, applying heat, and taking pain-relieving medications). However, it is occasionally difficult to treat. Some health care professionals are trained to use a technique called spinal manipulation to relieve low-back pain and improve physical function (the ability to walk and move). This fact sheet provides basic information about low-back pain, summarizes research on spinal manipulation for low-back pain, and suggests sources for additional information.

Key Points

- Spinal manipulation is one of several options—including exercise, massage, and physical therapy—that can provide mild-to-moderate relief from low-back pain. Spinal manipulation appears to work as well as conventional treatments such as applying heat, using a firm mattress, and taking pain-relieving medications.

- Spinal manipulation appears to be a generally safe treatment for low-back pain when performed by a trained and licensed practitioner. The most common side effects (e.g., discomfort in the treated area) are minor and go away within 1 to 2 days. Serious complications are very rare.

- Cauda equina syndrome (CES), a significant narrowing of the lower part of the spinal canal in which nerves become pinched and may cause pain, weakness, loss of feeling in one or both legs, and bowel or bladder problems, may be an extremely rare complication of spinal manipulation. However, it is unclear if there is actually an association between spinal manipulation and CES.

- Tell all your health care providers about any complementary health practices you use. Give them a full picture of what you do to manage your health. This will help ensure coordinated and safe care. For tips about talking with your health care providers about complementary and alternative medicine see the National Center for Complementary and Alternative Medicine's (NCCAM) Time to Talk campaign at nccam.nih.gov/timetotalk/.

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National Institutes of Health
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About Low-Back Pain

Back pain is one of the most common health complaints, affecting 8 out of 10 people at some point during their lives. The lower back is the area most often affected. For many people, back pain goes away on its own after a few days or weeks. But for others, the pain becomes chronic and lasts for months or years. Low-back pain can be debilitating, and it is a challenging condition to diagnose, treat, and study. The total annual costs of low-back pain in the United States—including lost wages and reduced productivity—are more than $100 billion.

About Spinal Manipulation

Spinal manipulation—sometimes called "spinal manipulative therapy"—is practiced by health care professionals such as chiropractors, osteopathic physicians, naturopathic physicians, physical therapists, and some medical doctors. Practitioners perform spinal manipulation by using their hands or a device to apply a controlled force to a joint of the spine. The amount of force applied depends on the form of manipulation used. The goal of the treatment is to relieve pain and improve physical functioning.

Side Effects and Risks

Reviews have concluded that spinal manipulation for low-back pain is relatively safe when performed by a trained and licensed practitioner. The most common side effects are generally minor and include feeling tired or temporary soreness.

Reports indicate that cauda equina syndrome (CES), a significant narrowing of the lower part of the spinal canal in which nerves become pinched and may cause pain, weakness, loss of feeling in one or both legs, and bowel or bladder problems, may be an extremely rare complication of spinal manipulation. However, it is unclear if there is actually an association between spinal manipulation and CES, since CES usually occurs without spinal manipulation. In people whose pain is caused by a herniated disc, manipulation of the low back appears to have a very low chance of worsening the herniation.

For risks associated with spinal manipulation affecting the upper (cervical) spine, see the NCCAM fact sheet *Chiropractic: An Introduction* at nccam.nih.gov/health/chiropractic/introduction.htm.

What the Science Says About Spinal Manipulation for Low-Back Pain

Overall, studies have shown that spinal manipulation is one of several options—including exercise, massage, and physical therapy—that can provide mild-to-moderate relief from low-back pain. Spinal manipulation also appears to work as well as conventional treatments such as applying heat, using a firm mattress, and taking pain-relieving medications.

In 2007 guidelines, the American College of Physicians and the American Pain Society included spinal manipulation as one of several treatment options for practitioners to consider when low-back pain does not improve with self-care. More recently, a 2010 Agency for Healthcare Research and Quality (AHRQ) report noted that complementary health therapies, including spinal manipulation, offer additional options to conventional treatments, which often have limited benefit in managing back and neck pain. The AHRQ analysis also found that spinal manipulation

was more effective than placebo and as effective as medication in reducing low-back pain intensity. However, the researchers noted inconsistent results when they compared spinal manipulation with massage or physical therapy to reduce low-back pain intensity or disability.

Researchers continue to study spinal manipulation for low-back pain.

- A 2011 review of 26 clinical trials looked at the effectiveness of different treatments, including spinal manipulation, for chronic low-back pain. The authors concluded that spinal manipulation is as effective as other interventions for reducing pain and improving function.

- A 2010 review that looked at various manual therapies, such as spinal manipulation and massage, for a range of conditions found strong evidence that spinal manipulation is effective for chronic low-back pain and moderate evidence of its effectiveness for acute low-back pain.

- A 2009 analysis looked at the evidence from 76 trials that studied the effects of several conventional and complementary health practices for low-back pain. The researchers found that the pain-relieving effects of many treatments, including spinal manipulation, were small and were similar in people with acute or chronic pain.

- A 2008 review that focused on spinal manipulation for chronic low-back pain found strong evidence that spinal manipulation works as well as a combination of medical care and exercise instruction, moderate evidence that spinal manipulation combined with strengthening exercises works as well as prescription nonsteroidal anti-inflammatory drugs combined with exercises, and limited-to-moderate evidence that spinal manipulation works better than physical therapy and home exercise.

Researchers are investigating whether the effects of spinal manipulation depend on the length and frequency of treatment. In one study funded by NCCAM that examined long-term effects in more than 600 people with low-back pain, results suggested that chiropractic care involving spinal manipulation was at least as effective as conventional medical care for up to 18 months. However, less than 20 percent of participants in this study were pain free at 18 months, regardless of the type of treatment used.

Researchers are also exploring how spinal manipulation affects the body. In an NCCAM-funded study of a small group of people with low-back pain, spinal manipulation affected pain perception in specific ways that other therapies (stationary bicycle and low-back extension exercises) did not.

Managing Low-Back Pain

A review of evidence-based clinical guidelines for managing low-back pain resulted in several recommendations for primary care physicians and pointed to potential benefits of nondrug therapies including spinal manipulation, as well as exercise, massage, and physical therapy:

- **Acute low-back pain:** Routine imaging (x-rays or MRIs) generally is not necessary for patients who have had nonspecific low-back pain for a short time. These patients often improve on their own and usually should remain active, learn about back pain and self-care options, and consider nondrug therapies, including spinal manipulation, if pain persists longer than 4 weeks.

- **Chronic low-back pain:** Long-term use of opioid drugs usually does not improve functioning for patients with chronic low-back pain. However, these patients may benefit from nondrug therapies, including spinal manipulation. Psychological and social factors also may play a role in chronic low-back pain. Most patients will not become pain free; a realistic outlook focuses on improving function in addition to reducing pain.

To learn more, see the NCCAM Research Spotlight at nccam.nih.gov/research/results/spotlight/040209.htm.

NCCAM-Funded Research

Recent NCCAM-supported projects have been investigating:

- The biomechanisms of spinal manipulation—detailed studies of what happens in the body during manipulation of the low back
- The best number and frequency of treatments, and the length of care
- Estimated use, costs, and outcomes of chiropractic care for recurrent back pain.

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For More Information

NCCAM Clearinghouse

The NCCAM Clearinghouse provides information on NCCAM and complementary health practices, including publications and searches of Federal databases of scientific and medical literature. The Clearinghouse does not provide medical advice, treatment recommendations, or referrals to practitioners.

Toll-free in the U.S.: 1–888–644–6226
TTY (for deaf and hard-of-hearing callers): 1–866–464–3615
Web site: nccam.nih.gov
E-mail: info@nccam.nih.gov

National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)

NIAMS supports research into the causes, treatment, and prevention of arthritis and musculoskeletal and skin diseases; the training of scientists; and the sharing of research-based information.

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NIH Clinical Research Trials and You

The National Institutes of Health (NIH) has created a Web site, NIH Clinical Research Trials and You, to help people learn about clinical trials, why they matter, and how to participate. The site includes questions and answers about clinical trials, guidance on how to find clinical trials through ClinicalTrials.gov and other resources, and stories about the personal experiences of clinical trial participants. Clinical trials are necessary to find better ways to prevent, diagnose, and treat diseases.

Web site: www.nih.gov/health/clinicaltrials/

Research Portfolio Online Reporting Tools Expenditures & Results (RePORTER)

RePORTER is a database of information on federally funded scientific and medical research projects being conducted at research institutions.

Web site: projectreporter.nih.gov/reporter.cfm

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